MAWA EVENTS

Address: No. 857, Block A2. Leisure Commerce Square - No 9., 46150 Petaling Jaya, Selangor, Malaysia

Phone: +601116373203 | **Email:** info@mawaevents.net

PRINCIPLES OF ELECTRICAL ENGINEERING

"Mastering the Fundamentals of Electrical Engineering for Practical Applications"

Schedule

Date	Venue	Fees
20 – 24 Sep 2026	Doha, Qatar	USD 3495 per delegate

► **Available delivery methods:** Face-to-Face & Online Training

Introduction

The Principles of Electrical Engineering course is designed to provide participants with a solid foundation in electrical engineering concepts, theories, and practices. This 5-day training will cover key principles of electrical circuits, systems, and components, offering practical insights into the design, analysis, and troubleshooting of electrical systems. Through hands-on exercises and real-world case studies, participants will develop the essential skills needed to understand and apply electrical engineering concepts in various industries.

The course will focus on the fundamentals of circuit theory, electrical machines, and power systems, enabling participants to enhance their technical knowledge and problem-solving abilities. It is ideal for professionals seeking to strengthen their understanding of electrical engineering principles or those looking to transition into electrical engineering roles.

Objectives

By the end of this course, participants will be able to:

- Understand the basic principles of electrical engineering, including Ohm\'s Law, Kirchhoff's Laws, and circuit analysis.
- Analyze electrical circuits using both DC and AC systems.
- Identify and understand the operation of electrical machines and their applications.
- Design and analyze power systems, including transformers, generators, and motors.
- Apply electrical engineering concepts to solve real-world electrical engineering problems.

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Why Attend

- Gain a solid understanding of fundamental electrical engineering principles.
- Learn to analyze and design electrical circuits, systems, and machines.
- Improve your problem-solving abilities in electrical engineering applications.
- Enhance your technical skills with hands-on practice and real-world case studies.
- Learn from industry experts and network with peers in the electrical engineering field.

Target Audience

This program is designed for:

- Electrical engineers and technicians looking to reinforce their core knowledge.
- Engineers transitioning into electrical engineering roles.
- Students and recent graduates in electrical engineering fields.
- Professionals working with electrical systems, machinery, and power distribution.
- Individuals seeking to enhance their practical knowledge of electrical engineering.

Individual Benefits

Key competencies that will be developed include:

- A deep understanding of electrical engineering principles and their real-world applications.
- Proficiency in analyzing and solving electrical circuits and systems.
- The ability to design electrical systems and select appropriate electrical components.
- Enhanced troubleshooting skills for electrical machines and systems.
- Knowledge of electrical safety practices and standards.

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Improved technical competence in electrical engineering tasks and projects.
- Enhanced ability to analyze and optimize electrical systems and machinery.
- Better understanding of power generation, distribution, and system integration.
- The capability to implement safe and efficient electrical engineering practices.
- Greater confidence in addressing electrical engineering challenges in various industries.

Instructional Methodology

The course follows a blended learning approach combining theory with practice:

- Strategy Briefings – In-depth discussions on electrical engineering principles, theories, and applications.
- Case Studies – Real-world examples of electrical engineering challenges and solutions.
- Workshops – Hands-on exercises and activities to reinforce electrical system analysis and design.
- Peer Exchange – Group discussions on common electrical engineering challenges and solutions.
- Tools – Tools for circuit design, analysis, and simulation in electrical engineering.

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Course Outline

Detailed 5-Day Course Outline

Training Hours: 7:30 AM – 3:30 PM **Daily Format:** 3–4 Learning Modules | Coffee breaks: 09:30 & 11:15 | Lunch Buffet: 01:00 – 02:00

Day 1: Introduction to Electrical Engineering and Circuit Analysis

- Module 1: Fundamentals of Electrical Engineering (07:30 – 09:30)
- Overview of electrical engineering and its significance.
- Basic electrical concepts: voltage, current, resistance, power, and energy.
- Introduction to Ohm’s Law and Kirchhoff’s Laws.
- Module 2: DC Circuit Analysis (09:30 – 11:30)
- Analyzing simple and complex DC circuits.
- Series and parallel circuits, voltage and current division.
- Power calculations in DC circuits.

Day 2: Alternating Current (AC) and Reactive Power

- Module 3: AC Circuits and Power (07:30 – 09:30)
- Basic principles of alternating current.
- Understanding impedance, reactance, and phase relationships.
- Power calculations in AC circuits (real, reactive, and apparent power).
- Module 4: Inductive and Capacitive Reactance (09:30 – 11:30)
- Analyzing inductive and capacitive circuits.
- Understanding resonance and reactance behavior.
- Practical applications of AC circuits in power systems.

Day 3: Electrical Machines – Transformers and Motors

- Module 5: Transformers (07:30 – 09:30)
- Principles of transformer operation.
- Types of transformers and their applications.
- Transformer efficiency and power loss calculations.
- Module 6: Electrical Motors (09:30 – 11:30)
- Types of electrical motors: DC, AC, and synchronous motors.
- Operating principles of motors and their components.
- Motor efficiency, performance, and applications.

Day 4: Power Systems and Distribution

- Module 7: Power Generation and Transmission (07:30 – 09:30)
- Overview of power generation: sources and methods.
- Principles of power transmission and distribution.
- Power system components: generators, transformers, and transmission lines.
- Module 8: Electrical Distribution Systems (09:30 – 11:30)
- Design and operation of electrical distribution systems.
- Understanding power factor correction and its importance.
- Protection and safety in electrical distribution.

Day 5: Electrical Safety and Troubleshooting

- Module 9: Electrical Safety Standards (07:30 – 09:30)
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Safety protocols for electrical engineers.

- Grounding, insulation, and circuit protection standards.
- Risk assessment and hazard prevention in electrical systems.
- Module 10: Troubleshooting Electrical Systems (09:30 – 11:30)
- Common electrical system issues and their diagnosis.
- Techniques for troubleshooting electrical circuits and machines.
- Practical problem-solving using diagnostic tools and equipment.

Certification

Participants will receive a Certificate of Completion in Principles of Electrical Engineering, validating their understanding and application of electrical engineering principles in real-world scenarios.

Why Choose MAWA Events

- **Global Expertise:** More than 17 years of experience in professional training and consulting.
- **Industry-Leading Faculty:** Courses delivered by seasoned professionals with hands-on experience.
- **Practical Insights:** Learn to turn theory into actionable strategies for real-world business impact.
- **Client-Focused Solutions:** Customized programs designed to achieve your organisation’s unique goals.

In-House / Customized Training Interested in running this course for your team? Please contact us:	TEL: **+601116373203**	EMAIL: **info@mawaevents.net**